

We Claim:

1. A metering device for a liquid medium under pressure, the metering device comprising:

5 a housing having an inlet and an outlet for said liquid medium, said housing including a cylindrical chamber having an open end communicating with said outlet;

10 a first check valve means in said housing, said first check valve normally biased to close said open end of said cylindrical chamber;

a first piston slidably received and operatively disposed in said cylindrical chamber, said first piston and said cylindrical chamber defining a metering chamber;

15 means to conduct said liquid medium from said housing inlet to said metering chamber;

20 a second check valve located in said housing selectively positioned between an open position and a closed position, whereby pressure from said liquid medium biases said second check valve alternatively between said open and said closed position; and

25 said first piston forcing said liquid past said first check valve means to completely evacuate said metering chamber on each working stroke to thereby generally preclude entrapment of air in said metering chamber.

2. The metering device of claim 1 wherein said first check valve means includes a seal normally biased and in sealing engagement of said open end of said chamber.

30 3. The metering device of claim 1 wherein said second check valve means comprises a spring biased toggle mechanism arranged to provide said selective positioning of said second check valve means.

35 4. The metering device of claim 3 wherein said second check valve means further comprises:

a diametrically disposed passageway including a detent;

at least one detent ball member;

5 a check valve spring, said check valve spring biasing said at least one detent ball member outwardly against detent to provide said selective positioning of said second check valve means.

5. The metering device of claim 3 wherein said second check valve comprises a leaf spring.

10 6. The metering device of claim 1 wherein said first piston extends a predetermined distance out of said cylindrical chamber to completely evacuate said metering chamber.

15 7. A metering device for a liquid medium, the metering device comprising:

a housing having an inlet and an outlet for said liquid medium, said housing including a cylindrical chamber having an open end communicating with said outlet;

20 a first check valve means in said housing, said first check valve normally biased to close said open end of said cylindrical chamber;

25 a first piston slidably received and operatively disposed in said cylindrical chamber, said first piston and said cylindrical chamber defining a metering chamber;

means to conduct said liquid medium from said housing inlet to said metering chamber;

30 a second check valve located in said housing selectively positioned between an open position and a closed position, whereby pressure from said liquid medium biases said second check valve alternatively between said open and said closed position;

35 said first piston forcing said liquid past said first check valve means to completely evacuate said metering chamber on each working stroke of said first

piston to thereby generally preclude entrapment of air in said metering chamber; and

an adjusting screw, said adjusting screw regulating the length of said working stroke of said first piston to regulate the volume of said liquid within said metering chamber.

8. The metering device of claim 7 wherein said first check valve means includes a seal normally biased and in sealing engagement of said open end of said chamber.

9. The metering device of claim 7 wherein said second check valve means comprises a spring biased toggle mechanism arranged to provide said selective positioning of said second check valve means.

10. The metering device of claim 9 wherein said second check valve means further comprises a diametrically disposed passageway including a detent;

at least one detent ball member;

a check valve spring, said check valve spring biasing said at least one detent ball member outwardly against detent to provide said selective positioning of said second check valve means.

11. The metering device of claim 9 wherein said second check valve comprises a leaf spring.

12. The metering device of claim 7 wherein said first piston extends a predetermined distance out of said cylindrical chamber to completely evacuate said metering chamber.